

Bingo Game Approach on the Students' Performance in Biology

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ABSTRACT

The purpose of this study is to know if Bingo Game Approach is an effective approach towards the students. This study tries to find out the effectiveness of the Bingo Game Approach on the students' performance in biology. Specifically, this study aims to; find out the significant difference between the students' pretest scores in biology when grouped using Bingo Game Approach and Lecture Method; find out the significant difference between the students' posttest scores in biology when taught using Bingo Game Approach and Lecture Method; find out the significant difference between the students' pretest and posttest score in biology when taught using Bingo Game Approach and Lecture Method. The study used a true experimental design, the pretest posttest control group design. The study was conducted at Naawan National High School, Grade 8 section Compassion and Capability. Forty-five students were exposed using Bingo Game Approach and forty-five students were exposed to the lecture method respectively. The study utilized percentage, T-Test, Mann/Whitney Test, and Wilcoxon Signed Rank Test to analyze the result. There was no significant difference between the students' posttest scores in biology when exposed using Bingo Game Approach and Lecture Method. Wilcoxon Signed-Rank Test revealed that there is a significant difference between the students' pretest and posttest scores in biology when exposed using Bingo Game Approach and Lecture Method. This study concluded that Bingo Game Approach can improve the students' performance in biology.

KEYWORDS: *Bingo Game, Approach, Performance*

I. INTRODUCTION

We all know that biology is not a boring subject because it is the science of life or living matter in all its forms and phenomena, especially concerning origin, growth, reproduction, structure, and behavior (Bagley, 2014). Teachers must use some techniques, strategies, or approaches in the class so that the subject itself will be enjoyable and very attractive to the learners. Thus, it is a great challenge to the part of the teacher to make the subject mastery. In Bryner's survey, 73 percent said, "I didn't like the school." 61 percent said, "I didn't like the teachers." 60 percent said, "I didn't see the value in the work I was being asked to do." And lastly, about 25 percent said, "No adults in the school cared about me" (Bryner, 2007).

Michael Linsin (2012) says that there are eight things teachers do to cause boredom. First is sitting too long. Although it's important to increase your students' stamina for both paying attention during lessons and focusing during independent work, if they're made to sit too long, you're asking for trouble. Good teachers are observant and thus learn to know precisely when to switch gears and get their students up and moving. Second is talking too much. Students need room to breathe or they'll form an unspoken mutiny and turn your classroom upside down. The more economical and concise you are with your words; then, the more attentive your students will be. The third is making the simple, complex. Teachers do make their instruction more complex, more involved, more verbose which is a major reason why students don't progress. Effective teachers simplify, break down, and cut away the unimportant

contents to make it easier for students to understand. Fourth is making the interesting, uninteresting. Most students assume that most subjects are boring to learn. It's your job to make the subject more interesting. The fifth is talking about behavior instead of doing something about it. Teachers who struggle with classroom management tend to talk endlessly about behavior. They revisit the same tired topic over and over. Effective classroom management is about action. It's about doing and following through and holding students accountable. Sixth is directing too much, observing too little. Most teachers are in constant motion like directing, guiding, handholding, and micromanaging students from one moment to the next. This is not only remarkably inefficient, but it dampens enthusiasm for school. Instead, rely on sharp, well-taught routines to keep your students awake, alive, and responsible for every transition and repeatable moment of your day while you observe calmly from a distance. Seventh is leading a slow, sloppy, slipshod pace. Good teaching strives for a focus and efficiency of time, movement, and energy. The day crackles and glides cleanly from one lesson or activity to the next. As soon as one objective is met, it's on to the next without delay. And eighth is failing to adjust. Regardless of what you're trying to squeeze in by the end of the day, you must adjust. Sometimes all your students need is a moment to stretch their legs or say hello to a friend. Other times, you'll simply move on to something else.

One thing to cope up with the student's negative behavior inside the classroom, teachers will do some educational games. According to Lewis (2016), games are a regular part

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of students' lives, no matter what their grade level. One of the games that we must have in the classroom is the bingo game. Bingo is a wonderful teaching tool to have at your fingertips no matter what you are teaching. It also helps the students not to get bored and at the same time, to familiarize the important words that you discussed in the classroom. For example, if you will discuss the food chain, most of the class will not listen to your discussion especially at the back. Only a few of your students will listen to your discussion. Besides, some of the topics will only be familiarized with your students. In this case, the bingo game is one way to let your students be active in your class discussion. They will be able to enjoy in your class and at the same time, they will be also able to familiarize some important words that you have mentioned. This game is by a group and each group will be having five (5) members. Every group will answer the questions that the teacher asks and crush out the answers which are written on the bingo card. That will be the reason why students who didn't listen in times of discussion will be able to know most of the important words that were mentioned.

This game is not just applicable in biology but also other fields like Chemistry, Physics, Math, English, Astronomy, and others. Bingo is a popular game that can be played for cash and prizes (Bellis, 2016). But instead of giving those prizes, it's better to give your students extra points for participating in the class.

➤ **Statement of the Problem**

This study tries to find out the effectiveness of the bingo game approach on the students' pretest and posttest scores in biology. The study seeks to answer the following questions:

1. What are the students' pretest scores in biology when grouped using Bingo Game Approach and Lecture Method?
2. What are the students' posttest scores in biology when taught using Bingo Game Approach and Lecture Method?
3. Is there a significant difference between the students' pretest scores in biology when grouped using Bingo Game Approach and Lecture Method?
4. Is there a significant difference between students' posttest scores in biology when taught using the bingo game Approach and lecture method?
5. Is there a significant difference between the students' pretest and posttest scores in biology when exposed using Bingo Game Approach and Lecture Method?

➤ **Null Hypothesis**

Ho1: There is no significant difference between the students' pretest scores in biology when grouped using to Bingo Game Approach and Lecture Method.

Ho2: There is no significant difference between the students' posttest scores in Biology when taught using Bingo Game Approach and Lecture Method.

Ho3: There is no significant difference between the students' pretest and posttest score in Biology when taught using Bingo Game Approach and Lecture Method.

➤ **Scope and limitations of the study**

This study was conducted at Naawan National High School, Misamis Oriental in the school year 2016-2017. The respondents were the grade 8 students section Capability and section Compassion. There are forty-five (45) students

in each classroom. The students at National High School are heterogeneous. The topics that were discussed were the Food Web, Food Chain, Food Pyramid, Oxygen-Carbon Dioxide Cycle, Water Cycle, and Nitrogen Cycle. The grading period for this topic is in the fourth grading period. This topic conducted in five (5) consecutive days.

➤ **Definition of Terms**

The following terms are defined to clarify the terms used in the study;

Bingo Game Approach refers to a game that was played by the students in the experimental group and this will be played by a group.

Experimental Group refers to the students who were taught using the bingo game approach.

Lecture Method refers to the students who were taught without using the bingo game approach.

Naawan National High School refers to the high school located at Naawan, Misamis Oriental where the bingo game approach was conducted.

Performance refers to the beneficiaries' average grade of Biology subject in Grade 8 in Naawan National High School.

Pretest was a primary administered to determine a student's baseline knowledge or preparedness for an educational experience.

Posttest is a test given to students after completion of an instructional program or segment and often used in conjunction with a pretest to measure their achievement and the effectiveness of the program.

Respondents refer to students who play bingo games.

II. Materials and Methods

➤ **Research Design**

The study used true experimental design, the randomized pretest posttest control group design. It determines the differences between the experimental group and the control group. Data were transmitted numerical figures to undergo a statistical figure.

➤ **Subject of the study**

This study was conducted at Naawan National High School. It is located at Linangkayan Naawan, Misamis Oriental. The respondents of this study were the Grade 8 students of Naawan National High School during the school year 2016-2017. There were 45 students in Section Compassion and Section Confidence.

➤ **Data gathering procedure**

For the pretest, the author asked permission from the School Principal of Naawan National High School to conduct a pretest and after the school principal signed the letter of permission, the author started the pretest. For the data gathering, the author asked permission from the School Principal of Naawan National High School to conduct the study in their school. The classes were divided by section to determine if Bingo Game Approach is effective. Grade 8 section Compassion were exposed to Bingo Game Approach while Grade 8 section Confidence was exposed to the Lecture Method. In the implementation of the study, the Bingo Game Approach grouped the students into nine (9) groups so there will be five (5) students in each group. After they have grouped, the author gave them a bingo card for them to crush out the correct answers using chalk. The author read

first the instructions of the game and after reading it, the students 15 crushes out the correct answer. In the lecture Method, the lessons were taught purely. After this, the posttest was implemented in both two (2) sections.

➤ Instrument used in the study

For the experimental group, the researcher used the Bingo Game Approach. The researcher used chalk, board, and bingo cards for the activity. Students answered the bingo cards by a group. To encourage all students to participate, the author walked around the room and encourage students to interact. In the other group which was the control group, lessons were taught purely using Lecture Method, writing on the chalkboard during class discussions.

A pretest questionnaire was given before the implementation of the study and a posttest questionnaire was given after the implementation of the study. Both pretest and posttest composed of 30 items mostly taken from the Science book of Grade 8 Learners Module First Edition 2013, pages 273-290.

The student's performance in Biology was determined based on the grading system designed by the Department of Education (2015). In this type of evaluation, the students' result was categorized into outstanding, very satisfactory, satisfactory, fairly satisfactory, and did not meet the expectation. The minimum competency, which was considered as a passing score in this study is 75 %. Students have to be able to answer 75 % of the whole material before they can be categorized into a fairly satisfactory level.

The criteria mean Outstanding – the performance of the students who can answer 90% -100% correctly. Very Satisfactory – the performance level of the students who can answer 85% -89% correctly. Satisfactory – the performance level of the students who can answer 80% -84% correctly. Fairly Satisfactory – the performance level of the students who can answer 75%-79% correctly. Did Not Meet Expectation– the performance level of the students who can answer less than 75% correctly.

III. Results

➤ Students' pretest scores in biology when grouped using Bingo Game Approach and Lecture Method

Figure 1 shows the percentage distribution of the students' pretest scores in biology when grouped using Bingo Game Approach. It unveils that ninety-seven-point fifty percent (97.50%) of participants got a score between 14 and below which means did not meet the expectation and two-point fifty percent (2.50%) of participants got 18 to 15 which means Fairly Satisfactory. The group of Lecture Method unveils that ninety-five percent (95%) of participants got a score between 14 and below which means that did not meet the expectation and five percent (5%) of participants got a score between 15 to 18 which means that fairly satisfactory.

➤ Students' posttest scores in Biology when exposed using Bingo Game Approach and Lecture Method

Figure 2 shows the percentage distribution of students' posttest scores in biology when taught using Bingo Game Approach. It shows that fifty-five percent (55%) of participants got the score of 18 and below which mean fairly satisfactory; twenty-two-point fifty percent (22.50%) of participants got the score of 19 to 22 which means satisfactory; seventeen-point fifty percent (17.50%) of participants got the score of 23 to 26 which means very satisfactory, and lastly five percent (5%) of participants got

the score of 27 to 30 which means outstanding. The other group of Lecture Method reveals that sixty-five percent (65%) of participants got 14 and below which means did not meet expectation; twenty percent (20%) of participants got 15 to 18 which means fairly satisfactory, and thirteen percent (12.50%) got 19-22 which means satisfactory and two-point fifty percent (2.50%) got 23 to 26 which means very satisfactory.

➤ T-Test result on the difference between the students' pretest scores in Biology when grouped using Bingo Game Approach and Lecture Method

Table 1 shows the difference between the students' pretest scores in biology when grouped using Bingo Game Approach and Lecture Method. The data shows that there is no significant difference between the pretest scores in biology when grouped using Bingo Game Approach and Lecture Method as shown in their t-value of -0.22 that corresponds to the p-value of 0.82491 and that the null hypothesis is accepted. This means that the two groups are comparable to each other.

➤ Mann/Whitney Test result on the difference between the students' posttest scores in Biology when exposed using Bingo Game Approach and lecture method

Table 2 shows the difference between the students' posttest scores in biology when exposed using Bingo Game Approach and Lecture Method. The data shows that there is a significant difference between the posttest scores in biology when exposed using Bingo Game Approach and the lecture method as shown in their z-value of -5.95 that corresponds to the p-value of 0.14. And that the null hypothesis is not accepted.

➤ Wilcoxon Signed-Rank Test result on the difference between the students' pretest and posttest scores in Biology when exposed using Bingo Game Approach and lecture method

Table 3 shows the difference between the students' pretest and posttest scores in biology when exposed using Bingo Game Approach and Lecture Method. The data shows that there is a significant difference between the pretest and posttest scores in biology when exposed using Bingo Game Approach as shown in the p-value of 1.01E-08 respectively. And that the null hypothesis is rejected. The data also shows that there is a significant difference between the pretest and posttest scores in biology when exposed to the Lecture Method. As shown in the p-value of 1.63E-07. And that the null hypothesis is rejected.

IV. Discussion of Results

➤ Students' pretest scores in Biology when grouped using Bingo Game Approach and Lecture Method

Ninety-seven-point fifty percent (97.50%) of the students grouped using the Bingo Game Approach got a score of 14 and below which means did not meet the expectation and two-point fifty percent (2.50%) of the students got a score 18 and below which means fairly satisfactory. The pretest was conducted first to know the students' reading ability before being given the treatment (Arianto, 2015). Concerning the study, the researcher conducted a pretest to know the students' background knowledge of the selected topics in biology.

Based on the result, it shows that most of the participants that have taken the pretest find it hard because they have

taken the pretest without any previous knowledge and understanding of the content included in the test.

Most of the students' group using the lecture method got a score of between 14 and below which means did not meet the expectation. It shows that most of the students don't have previous knowledge about the topic. The result in a pretest of both groups is not surprising since it is a pre-assessment for the topic included in the research.

➤ **Students' posttest scores in Biology when exposed using Bingo Game Approach and lecture method**

Fifty-five percent (55%) of participants got the score of 18 and below which mean fairly satisfactory; twenty-three percent (22.50%) of participants got the score of 19 to 22 which means satisfactory; seventeen-point fifty percent (17.50%) of participants got the score of 23 to 26 which means very satisfactory, and lastly five percent (5%) of participants got the score of 27 to 30 which means outstanding.

Bingo has been around for many years and is played by many from young to old. It's a fun and exciting game. Aside from enjoying this game, students may also learn the lesson that the teacher teaches. The approach is also based on the view that is one right way, one truth that the student needs to learn, and that knowledge is the same for all learners. For this reason, it emphasizes teacher or trainer control and the trainer employs external reinforcement to motivate and encourage trainees to reach the stated objectives (Gagne, 1977).

Sixty-five percent (65%) of participants got 14 and below which means did not meet expectation; twenty percent (20%) of participants got 15 to 18 which means fairly satisfactory; twenty-two-point fifty percent (22.50%) got 19 to 22 which means satisfactory, and lastly two-point fifty percent (2.50%) got 23 to 26 which means very satisfactory. Biology is not that difficult and most of the students can relate the topic because it is the study of life. Teaching Science (chemistry, biology, physics, etc.) can be challenging, and may often be complicated by students developing misconceptions of the Biology they are taught (Taber, 2009). The task of teaching students Biology concepts meaningfully is sometimes rather complicated and so is too very often not fulfilled resulting in poor performance in the subject (Monica, 2013).

➤ **T-Test result on the difference between the students' pretest scores in Biology when grouped using Bingo Game Approach and lecture method**

The t-test shows that there is no significant difference between the pretest scores in biology when grouped using Bingo Game Approach and Lecture Method as shown in their t-value of -0.22 that corresponds to the p-value of 0.82491 and that the null hypothesis is accepted. The pretest scores of students of both the Bingo Game Approach and Lecture Method do not differ with each other. It means that their level of prior knowledge of the topic given in the pretest is equal.

Low-achieving students in high schools were subjects in a study aimed at identifying the learning difficulties of biology concepts. The biological content referred to cells, organelles, organs and physiological processes, hormonal regulation, oxygen transport, controlled experiments and the principle of structure and function, teaming difficulties are discussed in the light of the existing gap between the formal reasoning

level demands of the learning material and students' cognitive development (Lazarowitz and Penso, 2010).

➤ **Wilcoxon - Mann/Whitney Test result on the difference between the students' posttest scores in chemistry when exposed using Bingo Game Approach and lecture method**

Wilcoxon-Mann/Whitney Test revealed that there is a significant difference between the posttest scores in Biology when exposed using Bingo Game Approach and the lecture method. However, as shown in their z-value of -5.95 that it corresponds to the p-value of 0.14. Bingo Game is one of technique in teaching vocabulary. This game can be practiced by asking students to remind words they have remembered the lesson. This study aimed at knowing the effectiveness of the Bingo Game to teach vocabulary at elementary school and high school. The research design of this research was a pre-experimental research design by using one group pre-test post-test with a quantitative approach (Munawaroh and Tulungagung, 2015).

This unveils that Bingo Game Approach has highly significant results in terms of students' performance in biology. This proves that the Bingo Game Approach is more effective in teaching biology. If we use this game in our class, then students will be having fun while learning.

➤ **Wilcoxon Signed-Rank Test result on the difference between the students' pretest and posttest scores in Biology when exposed using Bingo Game Approach and lecture method**

Wilcoxon Signed-Rank Test shows that there is a significant difference between the pretest and posttest scores in biology when exposed using Bingo Game Approach as shown in the p-value of 1.01E-08 respectively. The data also shows that there is a significant difference between the pretest and posttest scores in Biology when exposed to the Lecture method as shown in the p-value of 1.63E-07.

Discussion is very important to the students. Before you give assessments like quizzes, tests, oral recitation, and others, teachers should discuss the lesson first. Based on the results, when you give some assessments without discussion, a lot of students will fail. But when you discuss the lessons first, then most of the students will pass. Especially when your students are exposed to different approaches, they will get higher scores than just exposing them to the lecture method. Bingo Game Approach is a more effective approach according to the results. Using this approach, it can assure you that your students will be having fun while learning.

V. Summary and Conclusions

1. The study determined the effectiveness of the Bingo Game Approach on the students' performance in Biology. Specifically, this study aims to determine the students' pretest score in biology performance when grouped using Bingo Game Approach and Lecture Method; determine the students' posttest score in biology when taught using Bingo Game Approach and Lecture Method; find out the significant difference between the students' pretest score in biology when taught using Bingo Game Approach and Lecture Method; find out the significant difference between the students' posttest score in biology using bingo Game Approach and Lecture Method; find out the significant difference between the students' pretest and posttest score in Biology when exposed using Bingo Game Approach and Lecture Method. The study used a true experimental

design, the pretest posttest control group design. The study conducted at Naawan National High School, Grade 8 sections Compassion and Capability. There were forty-five (45) randomly selected students exposed using the Bingo Game approach and forty-five (45) students exposed to the lecture method respectively. Both the two groups were given a pretest before the conduct of the study and posttest after the implementation of the study. The study utilized percentage, T-Test, Wilcoxon-Mann/Whitney Test, and Wilcoxon Signed Rank Test to analyze the result.

2. Most of the students' pretest grouped using Bingo Game Strategy and Lecture Method got a score in Biology between 14 and below which means did not meet the expectation.
3. Fifty-five percent (55%) of the students exposed using Bingo Game Approach got a score in Biology between 15 to 18 which means fairly satisfactory while sixty-five percent (65%) of the students exposed to Lecture Method got a score in Biology between 14 and below which means did not meet the expectation.
4. There is no significant difference between the pretest scores in Biology when grouped using Bingo Game Approach and the lecture method.
5. There is a significant difference between the posttest scores in Biology when exposed using Bingo Game Approach and the lecture method.
6. Wilcoxon Signed-Rank Test revealed that there is a significant difference between the pretest and posttest scores in Biology when exposed using Bingo Game Approach and there is a significant difference between the pretest and posttest scores in Biology when exposed to the Lecture method.
7. This study concluded that Bingo Game Approach can improve the students' performance in biology.

VI. Implications and Recommendations

1. The result implies that the Bingo Game Approach can improve students' performance when applied in teaching Biology.
2. A study can be conducted using a Bingo Game Approach with other variables like the demographic profile of the respondents (e.g. age, sex, socioeconomic status, etc).
3. For the teachers, this study could certainly benefit them in teaching any subject since they could be more aware of the role of teaching approach in making the teaching-learning process more effective and efficient.
4. For the students who wanted to have similar to this study, it should be conducted several times to have a better result.
5. The related study can be explored using the Bingo Game Approach in other subject areas like English, Mathematics, Physics, History, Chemistry, and others.

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Figures

Fig 1. Percentage distribution of the students' pretest score in biology when taught using Bingo Game Approach and Lecture Method

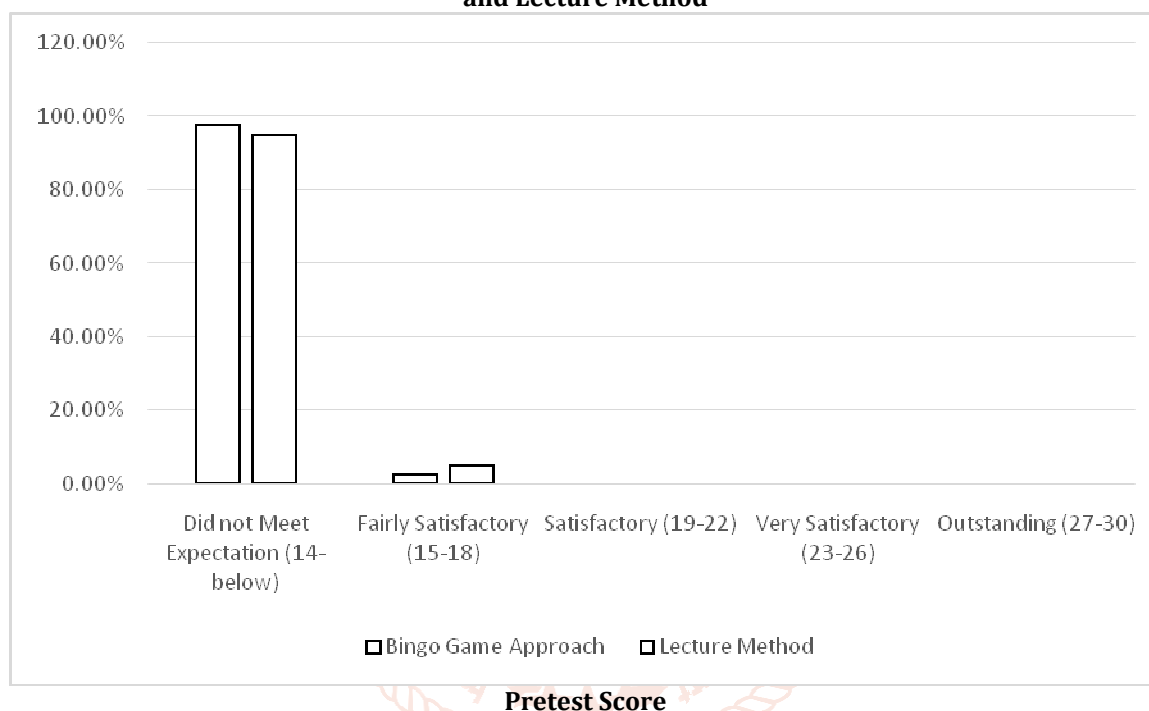
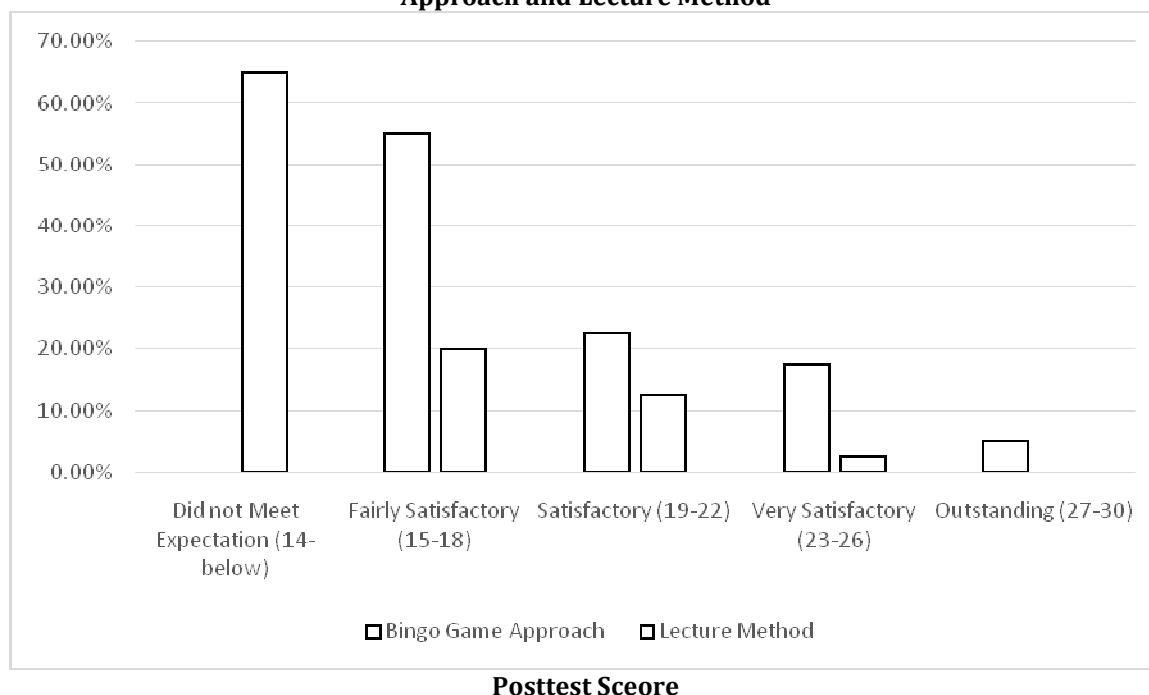


Figure 2. Percentage distribution of the students' posttest score in Biology when taught using Bingo Game Approach and Lecture Method



Tables**Table 1 T-Test result in the difference between the students' pretest scores of the two groups**

Group	Mean Score	Mean Diff.	T value	P-value	Remark
Pretest					
Bingo Game Approach	8.78				
		0.15	-0.22	0.82491	Not Significant
Lecture Method	8.63				
p < 0.05*					

Table 2 Mann/Whitney Test result on the difference between the students' posttest scores of the two groups

Group	N	Median	z-value	P-value	Remark
Posttest					
Bingo Game Approach	40	18			
			-5.95	2.72E-09	Significant
Lecture Method	40	12			
p < 0.05*					

Table 3. Wilcoxon Signed-Rank Test result on the difference between the students' pretest and posttest scores of the two groups

Group	N	Median	z-value	p-value	Remarks
Lecture Method					
Pretest	40	8			
			-5.24	1.63E-07	Significant
Posttest	40	12			
Experimental					
Pretest	40	8.5			
			-5.73	1.01E-08	Significant
Posttest	40	18			
p < 0.05*					